

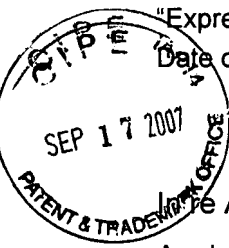
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BRINKS
HOFER
GILSON
& LIONE

ITW

"Express Mail" mailing label number: EV 653878065 US

Date of Deposit: September 17, 2007



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Masamichi Saito

Appln. No.: 10/823,473

Filed: April 13, 2004

For: CPP GIANT MAGNETORESISTIVE HEAD
WITH LARGE-AREA METAL FILM
PROVIDED BETWEEN SHIELD AND
ELEMENT

Examiner: Craig A. Renner

Art Unit: 2627

Confirmation No.: 5991

Attorney Docket No.: 9281/4799

Mail Stop PTA
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

TRANSMITTAL

Attached are:

- ☒ Transmittal Letter (in duplicate); Request for Reconsideration of Patent Term Adjustment (in duplicate) with attached Appendix A and B.
- ☒ Return Receipt Postcard

Fee calculation:

- ☒ No additional fee is required.
- ☐ Small Entity.
- ☐ An extension fee in an amount of \$_____ for a _____-month extension of time under 37 C.F.R. § 1.136(a).
- ☐ A petition or processing fee in an amount of \$_____ under 37 C.F.R. § 1.17(_____).
- ☐ An additional filing fee has been calculated as shown below:

					Small Entity			Not a Small Entity	
	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra	Rate	Add'l Fee	or	Rate	Add'l Fee
Total		Minus			x \$25=			x \$50=	
Indep.		Minus			x 100=			x \$200=	
First Presentation of Multiple Dep. Claim						+\$180=		+ \$360=	
					Total	\$		Total	\$

Fee payment:

- ☐ A check in the amount of \$_____ is enclosed.
- ☐ Please charge Deposit Account No. 23-1925 in the amount of \$_____.
- ☐ Payment by credit card in the amount of \$_____ (Form PTO-2038 is attached).
- ☒ The Director is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this paper (including any extension fee required to ensure that this paper is timely filed), or to credit any overpayment, to Deposit Account No. 23-1925.

Respectfully submitted,

September 17, 2007

Date

Gustavo Siller, Jr. (Reg. No. 32,305)

Date of Deposit: September 17, 2007

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

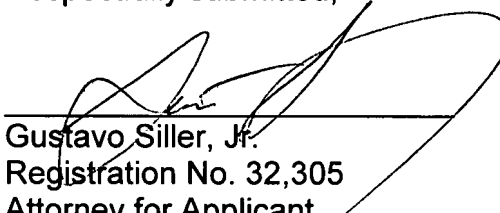
Group Art Unit No. 2627

Applicant's Attorney believes that the patent term adjustment should be 280 days. For the reasons stated herein, reconsideration of the patent term adjustment is respectfully requested. Please charge any additional fee required or credit for any excess fee paid to Deposit Account No. 23-1925. A duplicate copy of this Petition is attached.

The present application is subject to two terminal disclaimers. On June 15, 2007, Applicant filed a terminal disclaimer to U.S. Serial No. 10/823,474 and a terminal disclaimer to U.S. Serial No. 10/823,484. A copy of the cover page of U.S. Serial No. 10/823,484 (U.S. Patent No. 7,220,499) is attached as Exhibit B. U.S. Serial No. 10/823,484 (U.S. Patent No. 7,220,499) was extended or adjusted under 35 U.S.C. § 154(b) by 280 days. The present application and U.S. Serial No. 10/823,484 were filed on the same day. Therefore, Applicant believes that the present application should be adjusted or extended by 280 days and not 475 days.

It is respectfully asserted that the patent term adjustment determined by the U.S. Patent and Trademark Office for the present application may not be correct. Accordingly, Applicant's Attorney respectfully requests the U.S. Patent and Trademark Office to reconsider, and make revisions to the PAIR system Patent Term Adjustment History in view of the previous remarks. In addition, it is respectfully requested that the patent term adjustment be re-calculated by the U.S. Patent and Trademark Office in view of the above remarks. Office personnel are invited to contact the undersigned attorney for the Applicant's Attorney via telephone if such communication would be beneficial in fulfilling this request.

Respectfully submitted,



Gustavo Siller, Jr.
Registration No. 32,305
Attorney for Applicant

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APPENDIX

A

10/823,473	CPP GIANT MAGNETORESISTIVE HEAD WITH LARGE-AREA METAL FILM PROVIDED BETWEEN SHIELD AND ELEMENT	08-29-2007::09:46:37
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Patent Term Adjustments

Patent Term Adjustment (PTA) for Application Number: 10/823,473

Filing or 371(c) Date:	04-13-2004	USPTO Delay (PTO) Delay (days):	480
Issue Date of Patent:	-	Three Years:	-
Pre-Issue Petitions (days):	+0	Applicant Delay (APPL) Delay (days):	5
Post-Issue Petitions (days):	+0	Total PTA (days):	475
USPTO Adjustment(days):	+0	Explanation Of Calculations	

Patent Term Adjustment History

Date	Contents Description	PTO(Days)	APPL(Days)
06-22-2007	Mail Notice of Allowance		
06-22-2007	Mail Examiner's Amendment		
06-21-2007	Document Verification		
06-21-2007	Notice of Allowance Data Verification Completed		
06-20-2007	Examiner's Amendment Communication		
06-19-2007	Paralegal TD Accepted		
06-15-2007	Terminal Disclaimer Filed		
06-15-2007	Terminal Disclaimer Filed		
06-18-2007	Date Forwarded to Examiner		
06-15-2007	Amendment after Final Rejection		
03-15-2007	Mail Final Rejection (PTOL - 326)		
03-15-2007	Final Rejection		
01-11-2007	New or Additional Drawing Filed		
01-31-2007	Date Forwarded to Examiner		
01-11-2007	Response after Non-Final Action		5
10-06-2006	Mail Non-Final Rejection	480	
10-02-2006	Non-Final Rejection	↑	
09-17-2004	Information Disclosure Statement considered	↑	
04-13-2004	Information Disclosure Statement considered	↑	
07-25-2006	Case Docketed to Examiner in GAU	↑	
04-17-2006	Miscellaneous Incoming Letter	↑	
03-22-2006	Case Docketed to Examiner in GAU	↑	
11-02-2005	Case Docketed to Examiner in GAU	↑	
11-05-2004	IFW TSS Processing by Tech Center Complete	↑	
11-05-2004	Case Docketed to Examiner in GAU	↑	
09-17-2004	Reference capture on IDS	↑	
09-17-2004	Information Disclosure Statement (IDS) Filed	↑	
09-17-2004	Information Disclosure Statement (IDS) Filed	↑	
04-13-2004	Request for Foreign Priority (Priority Papers May Be Included)	↑	
04-13-2004	Information Disclosure Statement (IDS) Filed	↑	

04-13-2004	Information Disclosure Statement (IDS) Filed	⬆
04-13-2004	Preliminary Amendment	⬆
09-01-2004	Transfer Inquiry to GAU	⬆
06-25-2004	Application Return from OIPE	⬆
06-25-2004	Application Return TO OIPE	⬆
06-25-2004	Application Dispatched from OIPE	⬆
06-25-2004	Application Is Now Complete	⬆
05-18-2004	Cleared by OIPE CSR	⬆
04-23-2004	IFW Scan & PACR Auto Security Review	⬆
04-13-2004	Initial Exam Team nn	⬆

Close Window

APPENDIX

B



US007220499B2

(12) **United States Patent**
Saito et al.

(10) **Patent No.:** **US 7,220,499 B2**
(45) **Date of Patent:** **May 22, 2007**

(54) **CPP GIANT MAGNETORESISTIVE HEAD
HAVING ANTIFERROMAGNETIC FILM
DISPOSED IN REAR OF ELEMENT**

(75) Inventors: **Masamichi Saito**, Niigata-ken (JP);
Yoshihiro Nishiyama, Niigata-ken (JP);
Yosuke Ide, Niigata-ken (JP); **Eiji**
Umetsu, Niigata-ken (JP); **Naoya**
Hasegawa, Niigata-ken (JP); **Yasuo**
Hayakawa, Niigata-ken (JP)

(73) Assignee: **Alps Electric Co., Ltd.**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 280 days.

(21) Appl. No.: **10/823,484**

(22) Filed: **Apr. 13, 2004**

(65) **Prior Publication Data**
US 2004/0207962 A1 Oct. 21, 2004

(30) **Foreign Application Priority Data**
Apr. 18, 2003 (JP) 2003-114189
Jul. 10, 2003 (JP) 2003-195159
Feb. 24, 2004 (JP) 2004/047756

(51) **Int. Cl.**
G11B 5/127 (2006.01)

(52) **U.S. Cl.** 428/811.5; 428/811.2;
428/815; 428/816; 360/324.11

(58) **Field of Classification Search** None
See application file for complete search history.

(56) **References Cited**

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GB 0408133.7.

Primary Examiner—Kevin M. Bernatz

(74) *Attorney, Agent, or Firm*—Brinks Hofer Gilson &
Lione

(57) **ABSTRACT**

A CPP giant magnetoresistive head includes lower and upper shield layers with a predetermined distance therebetween, and a giant magnetoresistive element (GMR) including pinned and free magnetic layers disposed between the upper and lower shield layers with a nonmagnetic layer interposed between the pinned and free magnetic layers. A current flows perpendicularly to the film plane of the GMR. The magnetoresistive head further includes an antiferromagnetic layer (an insulating AF of Ni—O or α -Fe₂O₃) provided in the rear of the GMR in a height direction to make contact with the upper or lower surface of a rear portion of the pinned magnetic layer which extends in the height direction, and an exchange coupling magnetic field is produced at the interface with the upper or lower surface, so that the magnetization direction of the pinned magnetic layer is pinned by the exchange coupling magnetic field in the height direction.

40 Claims, 37 Drawing Sheets

